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EXAMINER
TU, JULIA P

ART UNIT	PAPER NUMBER
2611	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/690,446	LIANG, JIE	
	Examiner	Art Unit	
	Julia P. Tu	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03/23/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-11 and 13-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-11 and 13-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The amendment filed 03/23/2007 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The subject matter, which was disclosed as admitted prior art on paragraph [0016], is deleted.

Applicant is required to cancel the new matter in the reply to this Office Action.

Response to Arguments

2. Applicant's arguments filed 03/23/2007 have been fully considered but they are not persuasive because the amendment to the specification introduces new matters. Therefore, the rejection is maintained.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

4. Claims 1-7 and 21 are rejected under 35 U.S.C. 102(a) as being anticipated by Applicant Admitted Prior Art (AAPA).

(1) with regard to claim 1 :

As shown in figure 1, AAPA discloses a wireless receiver having a low-power listen mode, comprising:

a first receiver path for decoding a preamble to a wireless data packet (block 22 in figure 1) and a second receiver path for decoding a data packet payload (block 24 in figure 1).

the first receiver path has a lower decoding resolution than the second receiver path (page 6, paragraph [0016]).

(2) with regard to claim 2:

AAPA further discloses second receiver path is separate from the first receiver path (see path leads to block 22 and path leads to block 24).

(3) with regard to claim 3:

AAPA further discloses the first receiver path requires less power to operate than the second receiver path (page 6, paragraph [0016]).

(4) with regard to claim 5:

AAPA further discloses the first receiver path comprises a 2-bit analog-to-digital converter (page 6, paragraph [0016]).

(5) with regard to claim 6:

AAPA further discloses the second receiver path comprises an 8-bit analog-to-digital converter (page 6, paragraph [0016]).

(6) with regard to claim 7:

AAPA further discloses the first receiver path uses barker-code detection to decode the preamble (page 6, paragraph [0016]).

(7) with regard to claim 21:

As shown in figure 1, AAPA discloses a wireless device that is adapted to receive data packets from another wireless device, comprising means for receiving encoded information via a data packet wherein a first means decodes the preamble of the data packet (block 22 in figure 1) and a second means decodes the payload of the data packet (block 24 in figure 1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 8, 9, 18-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant Admitted Prior Art (AAPA) in view of Okanoue et al. (US 6,738,439).

(1) regard to claim 8:

AAPA discloses all of the subject matters in claim 1 above except for packet detection logic to identify data packets directed to the receiver; and switching logic coupled to the packet detection logic to select the first receiver path or second receiver path depending on whether the packet detection logic has identified a data packet directed to the receiver.

However, Okanoue et al. disclose packet detection logic to identify data packets directed to the receiver; and switching logic coupled to the packet detection logic to select the first receiver path or second receiver path depending on whether the packet detection logic has identified a data packet directed to the receiver (see figure 5; column 2, lines 58-67).

It is desirable to have packet detection logic to identify data packets directed to the receiver; and switching logic coupled to the packet detection logic to select the first receiver path or second receiver path depending on whether the packet detection logic has identified a data packet directed to the receiver to reduce power consumption. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the system as taught by Okanoue et al. to the system as taught by AAPA to reduce power consumption (column 3, lines 45-50).

(2) with regard to claim 9:

AAPA discloses all of the subject matters in claims 1 and 7 above except for the switching selects the first receiver path until a data packet is identified and then selects the second receiver path to decode the data packet payload.

However, Okanoue et al. further disclose the switching selects the first receiver path until a data packet is identified and then selects the second receiver path to decode the data packet payload (see switches 101 and 102 figure 5).

It is desirable to have the switching selects the first receiver path until a data packet is identified and then selects the second receiver path to decode the data packet payload to conserve power. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the switching selects the first receiver path until a data packet is identified and then selects the second receiver path to decode the data packet payload as taught by Okanoue et al. to the system as taught by AAPA to reduce power consumption (column 3, lines 48-49).

(3) with regard to claim 18:

As shown in figure 1, AAPA disclose a method for receiving a data packets in a wireless receiver, comprising:

receiving radio frequency signals with a first receiver path (see blocks 14, 18 and 22 in figure 1);

decoding signals received through the first receiver path to detect a code in a preamble of a received data packet (see block 22 in figure 1);

receiving a payload of received data packet with the second receiver path (see block 24 in figure 1).

AAPA disclose all of the above subject matters except for upon detection of the code, switching to a second receiver path.

However, Okanoue et al. disclose upon detection of the packet, switching to a second receiver path (column 2, lines 61-67).

It is desirable to include switching circuit to switch to second receiver path upon detection of the packet to demodulate the received data packet. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include switching circuit as taught by Okanoue et al. to the method as taught by AAPA to reduce power consumption (column 3, lines 48-49).

(4) with regard to claim 19:

Okanoue et al. further disclose switching back to the first receiver path when receiving of payload is completed (column 2, lines 58-67).

(5) with regard to claim 20:

AAPA further teaches first receiver path requires less power than second receiver path (page 6, paragraph [0016]).

(6) with regard to claim 22:

AAPA discloses all of the subject matters in claim 21 above except for switching means for switching between the first and second means.

However, Okanoue et al. disclose switching means for switching means for switching between the first and second means (see switch 101 and 102).

It is desirable to have switching means for switching between the first and second means to conserve power. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include switching means as taught by Okanoue et al. into the system as taught by AAPA to reduce power consumption (column 3, lines 48-49).

For the applicant's convenient, the following rejection is made in accordance with the amended specification.

Claim Rejections - 35.USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-3, 5, 6, 10, 11, 13, 14, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galati et al. (WO 02/082121) in view of Imaizumi et al. (US 6,928,103).

(1) with regard to claim 1:

As shown in figure 1, Galati discloses a wireless receiver having a low-power listen mode, comprising:

a first receiver path for decoding a preamble to a wireless data packet (preamble analyzer 3 in figure 1) and a second receiver path for decoding a data packet payload (message processor 4 in figure 1).

Galati discloses all of the above subject matters but is silent about the first receiver path has a lower decoding resolution than the second receiver path.

However, Imaizumi teaches 4-bit data for the detection of the preamble (i.e. low decoding resolution for preamble detection) and 8-bit data for the demodulation processing (column 10, lines 10-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a preamble detection path and message processor path as taught by Galati, in which preamble detection path has lower resolution than the message processing path as taught by Imaizumi. In doing so, power consumption will be reduced significantly.

(2) with regard to claim 2:

Galati further discloses second receiver path is separate from the first receiver path (see preamble analyzer 3 and message processor 4 in figure 1).

(3) with regard to claim 3:

Galati and Imaizumi further disclose the first receiver path requires less power to operate than the second receiver path (see two paths in figure 1 of Galati reference; also, see column 10, lines 10-15 in Imaizumi reference; note that the preamble detection has 4-bit data and the demodulation processing has 8-bit data; therefore, it is obvious to one of ordinary skill in the art that the first receiver path (i.e. preamble

analyzer 3) requires less power to operate than the second receiver path (i.e. message processor 4)).

(4) with regard to claim 6:

Imaizumi further discloses the second receiver path comprises an 8-bit analog-to-digital converter (column 10, lines 10-15).

(5) with regard to claim 10:

As shown in figure 1, Galati discloses a wireless receiver having a low-power listen mode, comprising:

a first analog front end (see blocks 1, 2, and 3 in figure 1) and a second analog front end to decode a received data packet (see blocks 1, 2, and 4 in figure 1), wherein the data packet comprises a preamble and payload; and wherein said first analog front end decodes the preamble (see preamble analyzer 3 in figure 1) and the second analog front end decodes the payload (see message processor 4 in figure 1).

Galati discloses all of the above subject matters but is silent about the first analog front end has a lower resolution than the second analog front end.

However, Imaizumi teaches 4-bit data for the detection of the preamble (i.e. low decoding resolution for preamble detection) and 8-bit data for the demodulation processing (column 10, lines 10-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Imaizumi into the teaching of Galati in order to reduce power consumption.

(6) with regard to claim 11:

Galati and Imaizumi further disclose the first analog front end requires less power to operate than the second analog front end (see two paths in figure 1 of Galati reference; also, see column 10, lines 10-15 in Imaizumi reference; note that the preamble detection has 4-bit data and the demodulation processing has 8-bit data; therefore, it is obvious to one of ordinary skill in the art that the first receiver path (i.e. preamble analyzer 3) requires less power to operate than the second receiver path (i.e. message processor 4)).

(7) with regard to claims 5 and 13:

Galati and Imaizumi discloses all of the subject matters in claim 1 above but do not expressly teach a 2-bit analog-to-digital converter. However, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have a 2-bit analog-to-digital converter instead of a 4-bit analog-to-digital converter as taught by Imaizumi. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with 4-bit analog-to digital converter. Therefore, it would have been obvious to one of ordinary skill in the art to modify Imaizumi teaching to obtain the invention as specified in claims 5 and 13.

(8) with regard to claim 14:

Imaizumi further discloses the second receiver path comprises an 8-bit analog-to-digital converter (column 10, lines 10-15).

(9) with regard to claim 21:

As shown in figure 1, Galati discloses a wireless device that is adapted to receive data packets from another wireless device, comprising means for receiving encoded information via a data packet wherein a first means decodes the preamble of the data packet (see preamble analyzer 3 in figure 1) and a second means decodes the payload of the data packet (message processor 4 in figure 1).

Galati discloses all of the above subject matters but is silent about means for decoding the preamble has a lower decoding resolution than the means for decoding the payload.

However, Imaizumi teaches 4-bit data for the detection of the preamble (i.e. low decoding resolution for preamble detection) and 8-bit data for the demodulation processing (column 10, lines 10-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Imaizumi into the teaching of Galati in order to reduce power consumption.

9. Claims 8, 9, 16-20, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galati et al. (WO 02/082121) in view of Imaizumi et al. (US 6,928,103) and further in view of Okanoue et al. (US 6,738,439).

(1) regard to claims 8 and 16:

Galati and Imaizumi disclose all of the subject matters in claim 1 above except for packet detection logic to identify data packets directed to the receiver; and switching logic coupled to the packet detection logic to select the first receiver path or second

receiver path depending on whether the packet detection logic has identified a data packet directed to the receiver.

However, Okanoue et al. disclose packet detection logic to identify data packets directed to the receiver; and switching logic coupled to the packet detection logic to select the first receiver path or second receiver path depending on whether the packet detection logic has identified a data packet directed to the receiver (see figure 5; column 2, lines 58-67).

It is desirable to have packet detection logic to identify data packets directed to the receiver; and switching logic coupled to the packet detection logic to select the first receiver path or second receiver path depending on whether the packet detection logic has identified a data packet directed to the receiver to reduce power consumption. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the system as taught by Okanoue et al. to the system as taught by Galati and Imaizumi to reduce power consumption (column 3, lines 45-50).

(2) with regard to claims 9 and 17:

Galati and Imaizumi disclose all of the subject matters in claims 1 and 7 above except for the switching selects the first receiver path until a data packet is identified and then selects the second receiver path to decode the data packet payload.

However, Okanoue et al. further disclose the switching selects the first receiver path until a data packet is identified and then selects the second receiver path to decode the data packet payload (see switches 101 and 102 figure 5).

It is desirable to have the switching selects the first receiver path until a data packet is identified and then selects the second receiver path to decode the data packet payload to conserve power. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the switching selects the first receiver path until a data packet is identified and then selects the second receiver path to decode the data packet payload as taught by Okanoue et al. to the system as taught by Galati and Imaizumi to reduce power consumption (column 3, lines 48-49).

(3) with regard to claim 18:

As shown in figure 1, Galati discloses a method for receiving a data packets in a wireless receiver, comprising:

receiving radio frequency signals with a first receiver path (preamble analyzer 3 in figure 1);

decoding signals received through the first receiver path to detect a code in a preamble of a received data packet (see preamble analyzer 3 in figure 1);

receiving a payload of received data packet with the second receiver path (message processor 4 in figure 1);

Galati discloses all of the above subject matters but is silent about the first receiver path has a lower decoding resolution than the second receiver path.

However, Imaizumi teaches 4-bit data for the detection of the preamble (i.e. low decoding resolution for preamble detection) and 8-bit data for the demodulation

processing (column 10, lines 10-15). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a preamble detection path and message processor path as taught by Galati, in which preamble detection path has lower resolution than the message processing path as taught by Imaizumi. In doing so, power consumption will be reduced significantly.

Galati and Imaizumi disclose all of the above subject matters except for upon detection of the code, switching to a second receiver path.

However, Okanoue et al. disclose upon detection of the packet, switching to a second receiver path (column 2, lines 61-67).

It is desirable to include switching circuit to switch to second receiver path upon detection of the packet to demodulate the received data packet. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include switching circuit as taught by Okanoue et al. to the method as taught by Galati to reduce power consumption (column 3, lines 48-49).

(4) with regard to claim 19:

Okanoue et al. further disclose switching back to the first receiver path when receiving of payload is completed (column 2, lines 58-67).

(5) with regard to claim 20:

Galati and Imaizumi further disclose the first receiver path requires less power to operate than the second receiver path (see two paths in figure 1 of Galati reference;

also, see column 10, lines 10-15 in Imaizumi reference; note that the preamble detection has 4-bit data and the demodulation processing has 8-bit data; therefore, it is obvious to one of ordinary skill in the art that the first receiver path (i.e. preamble analyzer 3) requires less power to operate than the second receiver path (i.e. message processor 4)).

(6) with regard to claim 22:

Galati and Imaizumi disclose all of the subject matters in claim 21 above except for switching means for switching between the first and second means.

However, Okanoue et al. disclose switching means for switching means for switching between the first and second means (see switch 101 and 102).

It is desirable to have switching means for switching between the first and second means to conserve power. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include switching means as taught by Okanoue et al. into the system as taught by Galati and Imaizumi to reduce power consumption (column 3, lines 48-49).

10. Claims 7 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Galati et al. (WO 02/082121) in view of Imaizumi et al. (US 6,928,103) as applied to claims 1 and 10 above, and further in view of Mennenga et al. (US 2003/0216154).

Galati and Imaizumi disclose all of the subject matters in claims 1 and 10 above except for the first receiver path uses barker-code detection to decode the preamble. However, the receiver path uses barker-code detection to decode the preamble is well

known in the art as it is evident by Mennenga (page 4, paragraph [0049]). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Mennenga into the teaching of Galati and Imaizumi in order to improve the density of the circuitry as well as to reduce the manufacturing costs (page 4, paragraph [0053]).

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julia P. Tu whose telephone number is 571-270-1087. The examiner can normally be reached on 7:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

J.T.
06/06/2007

CHIEH M. FAN
SUPERVISORY PATENT EXAMINER